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CLAIMS

1. A method comprising steps of:

covering a first area in a dielectric, said dielectric having a first dielectric constant; exposing a second area in said dielectric to a dielectric conversion source so as to

- 5 increase said first dielectric constant of said dielectric in said second area to a second dielectric constant.
 - 2. The method of claim 1 wherein said covering step comprises covering said first area in said dielectric with photoresist.
 - 3. The method of claim 1 wherein said dielectric conversion source comprises E-beams.
 - 4. The method of claim 1 wherein said dielectric conversion source comprises I-beams.
 - 5. The method of claim 1 wherein said dielectric conversion source comprises an amine based chemical.
- 20 6. The method of claim 1 wherein said dielectric conversion source comprises oxygen plasma.

- 7. The method of claim 1 wherein said dielectric is hydrogen silsesquioxane.
- 8. The method of claim 2 further comprising steps of: stripping said photoresist;
- etching a plurality of interconnect trenches in said first area in said dielectric and etching a plurality of capacitor trenches in said second area in said dielectric.
 - 9. The method of claim 8 further comprising a step of filling each of said plurality of capacitor trenches and each of said plurality of interconnect trenches with metal.
 - 10. The method of claim 9 wherein said metal is copper.
 - 11. A method comprising:

forming a dielectric layer in a semiconductor die, said dielectric layer having a first dielectric constant;

covering a first area of said dielectric layer;

exposing a second area in said dielectric layer to a dielectric conversion source so as to increase said first dielectric constant of said dielectric layer in said second area to a second dielectric constant;

etching a plurality of interconnect trenches in said first area in said dielectric layer; etching a plurality of capacitor trenches in said second area in said dielectric layer;



filling said plurality of interconnect trenches and said plurality of capacitor trenches with metal.

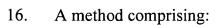
- 12. The method of claim 11 further comprising a step of performing a chemical mechanical polish after said filling step.
 - 13. The method of claim 11 wherein said metal is copper.
 - 14. A method comprising:

forming a dielectric layer in a semiconductor die, said dielectric layer having a first dielectric constant;

etching a plurality of interconnect trenches in a first area in said dielectric layer; etching a plurality of capacitor trenches in a second area in said dielectric layer; filling said plurality of interconnect trenches and said plurality of capacitor trenches with metal;

performing a chemical mechanical polish on said first and second areas;
exposing said second area in said dielectric layer to a dielectric conversion source
so as to increase said first dielectric constant of said dielectric layer in said second area to
a second dielectric constant.

15. The method of claim 14 wherein said metal is copper.



depositing a metal layer in a semiconductor die;

etching said metal layer to form a plurality of interconnect lines in a first area of said semiconductor die and a plurality of capacitor electrodes in a second area of said semiconductor die;

depositing a gap fill dielectric between said plurality of capacitor electrodes and between said plurality of interconnect lines;

covering said first area in said gap fill dielectric, said gap fill dielectric having a first dielectric constant;

exposing said second area in said gap fill dielectric to a dielectric conversion source so as to increase said first dielectric constant of said gap fill dielectric in said second area to a second dielectric constant.

- 17. The method of claim 16 wherein said covering step comprises covering said first area in said gap fill dielectric with photoresist.
- 18. The method of claim 16 wherein said dielectric conversion source comprises E-beams.
- 20 19. The method of claim 16 wherein said dielectric conversion source comprises I-beams.



- 20. The method of claim 16 wherein said dielectric conversion source comprises an amine based chemical.
- The method of claim 16 wherein said dielectric conversion sourcecomprises oxygen plasma.
 - 22. The method of claim 16 wherein said gap fill dielectric is hydrogen silsesquioxane.
 - 23. The method of claim 16 wherein said metal layer comprises aluminum.
 - 24. A structure comprising:

an interconnect trench in a first area of a dielectric, said first area of said dielectric having a first dielectric constant;

a capacitor trench in a second area of said dielectric, said second area of said dielectric having a second dielectric constant;

said second die ectric constant being higher than said first dielectric constant.

- 25. The structure of claim 24 wherein said capacitor trench and said
- 20 interconnect trench are filled with metal.
 - 26. The structure of claim 25 wherein said metal is copper.

27. The structure of claim 25 wherein said metal is aluminum.